

IN THE CLAIMS:

Claims 1-9 have been amended herein. All of the pending claims 1 through 9 are presented below. This listing of claims will replace all prior versions and listings in the application. Please enter these claims as amended.

1. (Currently Amended) A liquid solder jet apparatus for depositing a stream of liquid solder droplets on selected bond pads of at least one semiconductor die of a substrate having a surface having a plurality of locations of contact pads thereon extending throughout ~~said~~ the surface, each location of ~~said~~ the plurality of locations on ~~said~~ the surface having a start point and an endpoint, comprising:
  - a continuous stream generator for producing a stream of liquid metal solder droplets, ~~said~~ the liquid metal solder droplets having a uniform size within a consistent predetermined range, the consistent predetermined range of uniform size metal solder droplets being within ~~the~~ a size of the selected bond pads of ~~said~~ the at least one of ~~said~~ the semiconductor die and ~~said~~ the contact pads of ~~said~~ the substrate;
  - a stream director for selectively directing ~~said~~ the stream of liquid metal solder droplets after being produced by ~~said~~ the continuous stream generator onto ~~said~~ the selected bond pads of ~~said~~ the at least one semiconductor die of ~~said~~ the substrate, ~~said~~ the stream director comprising a raster scanner scanning ~~said~~ the stream of liquid metal solder droplets, ~~said~~ the raster scanner including:
    - an electrical charge generator for charging at least a portion of ~~said~~ the liquid metal solder droplets of ~~said~~ the stream of liquid metal solder droplets with an electrical charge;
    - a stream blanking device for intermittently blanking at least some of ~~said~~ the liquid metal solder droplets of ~~said~~ the stream of liquid metal solder droplets; and
    - an electrically charged droplet deflector for deflecting at least one electrically charged liquid metal solder droplet of ~~said~~ the stream of liquid metal solder droplets in a first direction and a second direction for deposition at a location of ~~said~~ the

plurality of locations extending throughout ~~said the~~ surface of ~~said the~~ substrate when ~~said the~~ substrate remains stationary;  
a reservoir for holding liquid metal solder;  
a vibrator for causing formation of ~~said the~~ stream of liquid metal solder droplets; and  
a temperature controller connected to ~~said the~~ reservoir for maintaining ~~said the~~ liquid metal solder in a liquid state.

2. (Currently Amended) The apparatus according to claim 1, wherein ~~said the~~ continuous stream generator ~~further~~ comprises:  
a pressure inducer; and  
the vibrator comprises a vibrator connected to ~~said the~~ pressure inducer for causing formation of ~~said the~~ stream of liquid metal solder droplets in connection with ~~said the~~ pressure inducer.

3. (Currently Amended) The apparatus according to claim 2, wherein ~~said the~~ pressure inducer comprises a piezoelectric crystal operating at a desired frequency.

4. (Currently Amended) The apparatus according to claim 2, wherein ~~said the~~ vibrator comprises a piezoelectric crystal operating at a selected frequency to form liquid metal droplets having a size in the range of micron size droplets of a liquid metal solder.

5. (Currently Amended) The apparatus according to claim 1, wherein ~~said the~~ continuous stream generator ~~further~~ includes a solder jet nozzle having an aperture producing a consistent range of droplets of ~~said the~~ liquid metal solder for forming ~~said the~~ stream of liquid metal solder droplets.

6. (Currently Amended) The apparatus according to claim 5, wherein ~~said the~~ continuous stream generator further includes a solenoid connected to ~~said the~~ solder jet nozzle.

7. (Currently Amended) The apparatus according to claim 1, wherein ~~said the~~ stream blanking device at least provides blanking of ~~said the~~ at least some of ~~said the~~ stream of liquid metal solder droplets when ~~said the~~ stream of liquid metal solder droplets is positioned between ~~said the~~ endpoint of a first location of ~~said the~~ plurality of locations extending throughout ~~said the~~ surface of ~~said the~~ substrate and ~~said the~~ start point of a second location of ~~said the~~ plurality of locations extending throughout ~~said the~~ surface of ~~said the~~ substrate.

8. (Currently Amended) The apparatus according to claim 1, wherein ~~said the~~ stream blanking device ~~further~~ comprises:  
a deflector field device selectively deflecting at least one droplet of ~~said the~~ stream of liquid metal solder droplets; and  
a droplet catcher catching ~~said the~~ at least one droplet which has been deflected from ~~said the~~ stream of liquid metal solder droplets prior to ~~said the~~ at least one droplet which has been deflected from ~~said the~~ stream of liquid solder droplets being deposited on ~~said~~ at least one bond pad of ~~said the~~ at least one semiconductor die of ~~said the~~ substrate.

9. (Currently Amended) The apparatus according to claim 1, wherein ~~said the~~ stream director includes a programmable direction controller for determining a direction of ~~said the~~ stream of liquid metal solder droplets.